ENGINEERING ANALYSIS
Murphy Oil USA, Inc.
(301-0009)

This is an addendum to the Preconstruction Analysis dated February 22, 2009.

Murphy Oil USA, Inc. (Murphy) has applied to the ADEM-Air Division for modification of its Synthetic Minor Operating Permit (SMOP) for it's petroleum product loading and storage facility, located at 2625 Highway 78 East in Anniston, Alabama.

On March 9, 2009, the Air Division received an application from Murphy requesting an increase in its limitations for the tank truck loading rack at the Anniston terminal. Current limitations for gasoline and diesel fuels are 252,000,000 gallons/12 months and 36,000,000 gallons/12 months, respectively.

Murphy possesses an Air Permit (X009) for the truck loading rack. A John Zink Vapor Combustion Unit (VCU) is the primary vapor control unit for emissions from the loading rack; however, the facility maintains a McGill carbon adsorption/absorption vapor recovery unit as a backup vapor control unit.

Murphy has requested a gasoline throughput for the truck rack of 350,000,000 gallons/12 months and a diesel throughput of 100,000,000 gallons/12 months, with an allowable of 35 mg/l of product loaded, in order to restrict potential VOC emissions to less than 100 TPY and potential HAP emissions to less than 10/25 TPY. With these restrictions, potential VOC (excluding fugitive emissions) and HAP emissions (including fugitive emissions) would be **61.90 TPY and 8.16 TPY,** respectively. Restricted potential facility-wide VOC emissions would be **82.81 TPY**. Murphy will be required to maintain monthly records of gasoline and distillate throughputs. In addition, Murphy will be required to submit an annual actual emissions report by February 15th of each year.

This facility is not subject to the MACT standard for Gasoline Distribution (40 CFR Part 63, Subpart R). In addition, the facility is not located within an ozone non-attainment area nor is it within 100 miles of a Class I Wilderness Area.

The Air Division requires a public notice for the modification of a SMOP permit to increase the facility's throughput limitations.

This analysis indicates that with Murphy's proposed limitations, this source would meet all of the requirements of the applicable regulations of the ADEM-Air Division. According to the Title V permit regulations, Murphy would be below the applicable Title V emission standards. Therefore, I recommend that a SMOP be issued to Murphy, pending any comments received during the public comment period.

Linda C. Brown

Linda C. Brown
Petroleum Section
Energy Branch
Air Division

May 12, 2009
Date

Attachments

Alabama Department of Environmental Management

SYNTHETIC MINOR OPERATING PERMIT

PERMITTEE: MURPHY OIL USA, INC.

FACILITY NAME: ANNISTON TERMINAL

LOCATION: ANNISTON, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0009-X009	**Tank Truck Loading Rack; Primary Control by a Vapor Combustion Unit; Secondary Control by a Vapor Recovery Unit**

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, as amended, Ala. Code §§22-28-1 to 22-28-23 (2006 Rplc. Vol.) (the "AAPCA") and the Alabama Environmental Management Act, as amended, Ala. Code §§22-22A-1 to 22-22A-15 (2006 Rplc. Vol.), and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

Murphy Oil USA, Inc. – Anniston Terminal
Anniston, Alabama
Permit No. 301-0009-X009
Provisos

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. Each point of emission will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised. During loading operations, access will be given to gasoline tank truck hatches by providing ladders, platforms, and other safety equipment to facilitate testing of tank trucks for leaks.

5. In case of shutdown of air pollution control equipment for scheduled maintenance for a period greater than **1 hour,** the intent to shut down shall be reported to the Air Division at least 24 hours prior to the planned shutdown, **unless accompanied by the immediate shutdown of the emission source.**

6. In the event there is a breakdown of equipment in such a manner as to cause increased emission of air contaminants for a period greater than **1 hour**, the person responsible for such equipment shall notify the Air Division within an additional 24 hours and provide a statement giving all pertinent facts, including the duration of the breakdown. The Air Division shall be notified when the breakdown has been corrected.

7. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment

is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

8. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

9. On completion of construction of the device for which this permit is issued, notification of the fact is to be given to the Chief of the Air Division. Authorization to operate the unit must be received from the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

10. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

11. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued there under.

12. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

13. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.

14. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

15. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

16. Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test

Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 15 working days of completion of testing.

Particulates	( )	Carbon Monoxide	( )
Sulfur Dioxide	( )	Nitrogen Oxides	( )
Volatile Organic Compounds	(X)	Visible Emissions	( )

17. Emissions tests are to be conducted at intervals not to exceed **two (2) years** following the date of initial compliance testing.

18. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

19. The Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

    To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

    a. The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.

    b. A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).

    c. A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.

    d. A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 15 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

20. If the vapor recovery unit is operated more than 30% of the terminal's total operating time during any consecutive 12 month period, an emissions test shall be conducted on the carbon vapor recovery unit in accordance with EPA Reference Method 25A or 25B, in addition to the testing requirements for the vapor combustion unit.

21. A record of the date and duration of the operation of the carbon bed vapor recovery unit shall be maintained in a form suitable for inspection.

22. The permittee shall comply with all applicable standards described in the Code of Federal Regulations, Title 40, Part 60, Subpart XX.

23. Gasoline throughput for the truck loading rack shall not exceed 350,000,000 gallons in any consecutive twelve (12) month period.

24. Distillate throughput for the truck loading rack shall not exceed 100,000,000 gallons in any consecutive twelve (12) month period.

25. Should this facility, at any time, exceed the throughput limits set forth in this permit, this Department should be notified within ten (10) days of the exceedence.

26. The allowable VOC emissions from this source shall not exceed 35 milligrams per liter of gasoline loaded (0.292 pounds per 1000 gallons of gasoline loaded).

27. The potential emissions of hazardous air pollutants (HAPs) from this bulk terminal, as identified in Section 112(b) of Title III of the Clean Air Act, shall not exceed 9.0 TPY for any single HAP and 24.0 TPY for any combination of HAPs. Compliance with this condition shall be determined by the throughput recordkeeping and reporting requirements of Proviso No. 28.

28. Records of monthly gasoline and distillate throughputs shall be maintained on site in a form suitable of reinspection for a period of not less than two (2) years. Annual gasoline and distillate loading rack throughputs shall be based on a rolling twelve-month period

and shall be determined by adding the current month's loading rack throughputs to those of the previous eleven months.

29. This facility shall submit, by February 15th of each calendar year, an annual report of the total throughputs of gasoline, distillates, and additives for the previous calendar year and the estimated actual total VOC and HAP emissions for the facility.

30. The facility shall not allow the loading of gasoline into tank trucks or trailers unless the tank trucks and trailers are vapor-tight and have visibly-attached valid ADEM Air Stickers or Jefferson County Department of Health Air Stickers.

DRAFT
Date

EMISSIONS SUMMARY (TPY)
(NSPS Allowable of 35 mg/l)

	RESTRICTED POTENTIAL EMISSIONS (With 35 mg/l NSPS allowable and throughput limitations)	
	VOCs	HAPs
Tanks*	10.08	1.42
Truck rack		
Gasoline	51.11	4.65
Distillate	0.71	0.08
TOTAL	61.90	6.15
Fugitives		
Truck Losses	18.98	1.73
Components*	1.93	0.28
TOTAL	82.81	8.16

*Tank and components emissions data is taken from the previous analysis. Based upon Tanks 4.09d data, tank emissions will not increase as a result of the throughput increase.

Emissions Calculations

The loading rack potential emissions are based upon maximum potential throughput gallons at the NSPS allowable of 35 mg/l. Restricted potential emissions are based upon the restricted throughput gallons at 35/mg/l.

HAP emissions for conventional/normal gasoline (not reformulated/oxygenated) were based on vapor profiles in the EPA SPECIATE 4.0, "Composite of 14 Headspace Gasoline Vapor Samples, 1996", (9.1% by wt. for total HAPs). Distillate vapor HAPs were based on EPA SPECIATE 4.0, "Composite of 9 Emission Profiles from Distillate Storage Tanks, 1993" (10.74% by wt. for total HAPs, based on diesel). 14.43% by wt. is used for **worst case** when throughput is a combination of gasoline and distillate.

Restricted Potential Emissions

Truck Rack with VCU (flare):

Restricted Potential Gasoline Loading Losses (using NSPS allowable of 35 mg/l and throughput limitation):

$$\frac{35\ mg}{L} \times \frac{350{,}000{,}000\ gal}{yr} \times \frac{3.785\ L}{gal} \times \frac{g}{1000mg} \times \frac{lb}{453.6g} = 102{,}218\ lbs/yr$$

51.11 TPY VOCs
4.65 TPY HAPs

Restricted Potential Distillate Loading Losses (Emission Factor AP-42: Table 5.2-5):

$$\frac{1.7\ mg}{L} \times \frac{100{,}000{,}000\ gal}{yr} \times \frac{3.785\ L}{gal} \times \frac{g}{1000mg} \times \frac{lb}{453.6g} = 1{,}419\ lbs/yr$$

0.71 TPY VOCs
0.08 TPY HAPs

Restricted Potential Truck Losses

$$\frac{13\ mg}{L} \times \frac{350{,}000{,}000\ gal}{yr} \times \frac{3.785\ L}{gal} \times \frac{g}{1000mg} \times \frac{lb}{453.6g} = \mathbf{37{,}966.82\ lbs/yr}$$

TPY VOCs 18.98
TPY HAPs 1.73